



**23 MAY 2003**

***Flying Operations***

***AIRCREW LIFE SUPPORT (ALS) PROGRAM***

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OPR: HQ AFMC/DOV  
(CMSgt Larry R. Cuffee)  
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This supplement establishes the Aircrew Life Support (ALS) Program for HQ AFMC, AFMC depots that have associate reserves personnel assigned to support flight test operations and AFMC field activities that have personnel assigned or attached for flying. It implements AFD 11-3, *Life Support*. This supplement applies to all personnel, including passengers, flying in aircraft for which AFMC is responsible or may be contractually liable for loss or damage. This supplement does not apply to the Air National Guard (ANG).

***SUMMARY OF REVISIONS***

This supplement incorporates policy and procedures previously contained in AFMC Supplement 1, AFI 11-301, *AFMC Aircrew Life Support Program*, 11 February, 2000. It expands on AFI 11-301 and other Air Force directives concerning ALS, Survival, Evasion, Resistance, and Escape (SERE) Training Instructor, equipment maintenance, the Air Force Test Parachute Program (TPP) responsibilities, Life Support Human System Wing (HSW) and the Air Force Research Laboratory (AFRL) personnel.

**AFI 11-301, 19 July 2002, is supplemented as follows:**

**1.1. Mission.** Provide AFMC aircrew and passengers top quality, safe and effective ALS equipment, training and programs.

1.2.1. HQ AFMC/DOV will establish minimum guidance for standards of life support operations within AFMC and the Air Force TPP at Edwards AFB, CA.

1.3.1. Supplements. Units are not required to supplement this instruction unless, necessary for unique unit requirements (refer to paragraph 2.9.2.1). If supplements are necessary, submit IAW AFI 33-360, Volume 1, Publications Management Programs. Send unit supplements to HQ AFMC/DOV for approval.

1.3.2. Waivers. Deviations from this supplement are not authorized without HQ AFMC/DOV written approval. Units may request waivers when unique circumstances or requirements affect their capability to support the programs, policies and procedures that are in this supplement. Forward AFMC Form 73, AFMC Flight Operations Waiver Request, with supporting information to HQ AFMC/DOV, 508 W. Choctawhatchee Ave., Suite 4, Eglin AFB, FL 32542-5713.

1.3.2.1. Government Flight Representatives (GFRs) within AFMC will submit written request to waive specific requirements of this instruction that are not included in, or conflict with, contractual requirements.

1.3.2.1.1. (Added) Changes. Units are encouraged to propose and recommend policy and procedural improvements to this supplement. Submit all suggested changes and improvements to this supplement on AF Form 847, **Recommendation for Change of Publication**. Send AF Form 847 to HQ AFMC/DOV, 508 W. Choctawhatchee Ave., Suite 4, Eglin AFB, FL 32542-5713.

2.9. AFMC Office of Primary Responsibility (OPR) for this supplement is HQ AFMC/DOV.

2.9.2.1. Major Command (MAJCOM) Technical Order (TO) Options. The T.O. procedures listed as “MAJCOM option” are contained in Attachment 2. If additional procedures become mandatory, units will be advised by message or supplement change. All other “MAJCOM options” will be determined at wing/unit level to standardize TO options within each unit. Life support officers (LSOs) for AFMC squadrons, detachments with no wing function, or tenant units on non-AFMC bases may determine TO options for their unit. All unit options will be reflected in local supplements.

2.9.2.2. (Added) Air Force Research Laboratory (AFRL) Life Support Personnel Responsibilities: Aircrew Life Support personnel assigned to AFRL are subject matter experts and liaisons between the field and the laboratory in the research and development of (ALSE) and human-related studies.

2.9.2.2.1. (Added) Assemble, inspects, and maintains ALSE necessary to support research, test and evaluation of ALSE and aircrew protection-related studies.

2.9.2.2.2. (Added) Fit and adjust ALSE on test subjects participating in laboratory studies.

2.9.2.2.3. (Added) Submit technical order improvement reports on ALSE on both fielded items and those involved in test and evaluation.

2.9.2.2.4. (Added) Draft, edit and review maintenance procedures necessary to support prototype ALSE under development.

2.9.2.2.5. (Added) Participate in flight safety evaluation boards assessing safety of ALSE items prior to flight-related studies.

2.9.2.2.6. (Added) Maintain current technical orders for conventional ALSE used in the laboratory.

2.9.2.2.7. (Added) Support System Program Offices during acquisition-related activities to include review edit and draft of acquisition-related documents.

2.9.2.2.8. (Added) Participate in Aircrew Protection Working Group activities as defined in the Aircrew Protection Executive Council (APEC) charter to ensure executive leadership is kept apprised of emerging technologies and to return to the laboratory issues plaguing the aircrew protection community.

2.9.2.2.9. (Added) Assess effectiveness of agencies supporting Operational Utility Evaluation (OUE) activities.

2.9.2.2.10. (Added) Monitor tests involving live test subjects utilizing ALSE.

2.9.2.2.11. (Added) Evaluate performance of ALSE deliverables related to acquisition, research and development contracts.

2.9.2.2.12. (Added) Research field-queries submitted from field units through each of the MAJCOMs.

2.9.2.2.13. (Added) Assigned technicians may volunteer to participate as test-subjects during ALSE-related studies.

2.9.2.2.14. (Added) Constructed/modify test assets necessary to support laboratory ALSE studies.

2.9.2.2.15. (Added) Brief ALS community on emerging technologies at biennial Worldwide Life Support Conference.

2.9.23. As required, units will host a working group meeting with organizations involved with Aircrew Protection responsibilities. Membership should include; Egress, Survival Equipment, Aerospace Medicine, CE Readiness, Logistics, SERE, Safety, and aircrew representation as applicable to the unit. Forward appropriate issues to the MAJCOM and other AFMC field units.

2.10.1. Director of Flying Operations (DFO) is responsible for unit ALS functions. Appoint, in writing a rated LSO who has charge of all ALS matters, including survival training. The LSO will not be required to perform other additional duties, except as required by limited manning requirements at small squadrons and detachments. Send one copy of the appointment letter to HQ AFMC/DOV, Life Support Branch.

2.10.1.1. (Added) Additional Duty LSO Responsibilities. AFMC squadrons, detachments, and government flight representatives (GFR) that are tenants on non-AFMC bases will appoint an additional duty LSO. This LSO monitors the host's or contractor organization's ALS program as it applies to the AFMC activity and makes sure this instruction is followed. When AFMC equipment, training or procedural requirements differ from host base or contractor programs, the DFO will make sure host-tenant or contract support agreements include these requirements where possible. Inform the HQ AFMC/DOV Life Support Branch, in writing, of those portions of support that cannot be provided according to this supplement. If necessary, request support from the nearest major AFMC base.

2.10.5. AFMC Units will ensure they follow T.O. 15X-1-1, Oxygen Equipment, recommended procedures when setting up an ALS facility.

2.15.4. AFMC Units will follow AFI 23-110 vol. 2 part 13 when using a receipt for ACDE on an AF Form 1297, **Temporary Issue Receipt**, or other authorized forms when equipment is issued and properly sized and fitted by ALS.

3.7.2. Semi-annually the LSO/Superintendent will choose one of the unit's assigned aircraft to be checked.

3.7.2.1. Remove a sample of ALSE that the aircrew of a selected aircraft should have after a successful ejection, bailout, ditching, or forced landing; transport the equipment to the activity's inspection area.

3.7.2.1.1. (Added) Under the supervision of the activity's LSO or superintendent, a technician will manually deploy or open the selected equipment to simulate a normal ejection, bailout, ditching, or forced landing sequence. Inspect each item of equipment and note any deficiencies.

3.7.2.1.2. (Added) Do not activate explosive or automatic opening devices installed in parachutes and survival kits during this check.

3.7.2.1.3. (Added) Life rafts and LPUs inflated during these tests will be used to satisfy the functional inflation requirements in the applicable TOs.

3.13.2. Units will document the training provided and abatement equipment for each individual exposed to shop hazards on the individual's AF Form 55, **Employee Safety and Health Record** or civilian equivalent.

5.2.2. Qualified personnel with Air Force Specialty Codes (AFSC) L11XX, L12XX, 1T0X1, or 1T1X1 will conduct egress training. In addition, the DFO may appoint no more than two additional aircrew members as egress instructors, in each squadron/unit, who are current and qualified in their MDS to conduct egress training. To maintain high training standards, field activity LSOs must review training qualifications and certify instructors annually by letter. The letter of certification must include a list of courses (applicable by aircraft system) each instructor is qualified to teach and must be updated by endorsement throughout the year.

5.2.2.1. (Added) LSOs must maintain current qualifications in one of the field's activity aircraft, preferably one equipped with an ejection seat. Full-time LSOs will attend courses listed in AFI 11-301v1. Additional duty LSOs are authorized and encouraged to attend those courses.

5.2.2.2. (Added) ALS supervisors or technicians (1T1X1) must have attained the standards required by AFMAN 36-2108 and completed the mandatory training in AFI 11-301.

5.2.2.3. (Added) Certified ALS egress instructors for any ejection seat aircraft must attend applicable local egress/cockpit familiarization refresher courses annually, IAW AFI 21-112. A qualified egress instructor will instruct the course.

5.2.2.4. (Added) DFOs will ensure there are adequate ALS continuation instructors available to provide training for the unit.

5.2.2.5. (Added) Training Support. The Air Armament Center (AAC) and Air Force Flight Test Center (AFFTC) should maintain the ability to send qualified SERE training instructor(s) and suitable training aids TDY to field activities unable to obtain the minimum training from host bases or contractors. When it is more appropriate and less costly, personnel may be sent TDY to AAC or AFFTC for training. The requesting unit is responsible for scheduling and providing TDY funds to support this training.

5.5.2. AFMC units will use AFI 11-2FT Vol 1(Chapter 4, Table 5) for frequencies and guidance for completing ALSCT.

5.10.1. Ensure lesson plans are developed for each type of aircraft with egress or ALSE installed according to the mission flown by the field activity. Each organization will physically possess current training lesson plans affecting the unit and ensure the ALS continuation training syllabi are effective, and lesson plans are reviewed annually for currency.

5.10.2. AFMC units will use IGs developed by the 436th Training Squadron Aircrew Life Support Section, Dyess AFB, Texas to provide ALSCT. Lessons will be tailored to meet the unit mission requirements.

6.2. AFMC units will comply with AFI 11-301, Volume 1, Aircrew Life Support Program, AFI 11-302, Volume 1, Life Support Equipment Configuration, Allowance Standards (AS) 016, Special Purpose Clothing and Personal Equipment, AS 450, Personal/Life Support Equipment, and applicable technical order requirements for wear and use of flight clothing and ALS and survival equipment. All non-passenger personnel (except flight stewards and crewmembers in support of CSAF/CC/CV and AFMC/CC on distinguished visitor airlift missions worldwide) will, as a minimum, wear flight boots, Nomex (or equivalent) coveralls, and have Nomex (or equivalent) gloves in their possession. Personnel flying in fighter or

trainer aircraft equipped with ejection seats must wear gloves at all times. Additionally, they will wear an Air Force approved helmet, oxygen mask, harness, and anti-G suit/combat edge (if required).

6.2.4. Per AFI 11-2FTv3, aircrews and operational support crewmembers in multi-engine aircraft must wear gloves for takeoff, approach, and landing.

6.2.7. (Added) DFOs will expand above minimum clothing requirements for each mission the field activity flies and for periods when seasonal clothing must be worn. Seasonal periods for local flying may be defined using average ground temperatures and chill factors, instead of the calendar date. Added minimum clothing requirements should be directly related to the aircraft flown, terrain, climate, forecast weather, number of occupants, availability of flight following service, and anticipated timeliness of search and rescue service.

6.2.8. (Added) Aircraft commanders will ensure personnel (including passengers) flying on AFMC aircraft wear appropriate clothing and footwear. In addition, personnel receiving taxi rides in an ejection seat aircraft will wear as a minimum flight boots (or equivalent), Nomex coveralls, and Nomex gloves on ejection type aircraft. The wearing of jewelry is prohibited.

6.2.9. (Added) Flying personnel operating aircraft from aircraft carriers may wear appropriate non-skid footwear.

6.3. When parachutes are worn (including parachutes integral to an ejection seat), the MC-1 knife with hook blade open, or riser cutter knife, will be carried in the pocket of the outer garment.

**Attachment 1 (AFMC)****REFERENCES**

(Added) The following publications are required to effectively manage and support an AFMC Life Support program. These publications are listed for reference only and are not at all inclusive. LSOs, superintendents, NCOICs, supervisors, and technicians should possess a working knowledge of these publications and supplements, where applicable.

**Publications**

AFIND18, *Index of Air Force Manpower Standards*

AFMAN 10-100, *Airman's Manual*

AFJI 10-220, Volume 1, *Contractor's Flight and Ground Operations*

AFJI 10-220, Volume 2, *Government Flight Representative Guidance*

AFI 11-404, *Centrifuge Training for High-G Aircrew*

AFI 21-202, *Combat Ammunition System Procedures*

AFI 21-208, *Munitions Forecast, Allocation, and Buy Budget Processes*

AFMAN 24-309, *Vehicle Operations*

AFI 31-101, Vol 1, *The Air Force Physical Security Program*

AFH 31-223, *The Air Force Resource Protection Program*

AFI 34-217, *Air Force Aero Club Program*

AFCAT 36-2223, *USAF Formal Schools (automated by Air Force Education and Training Course Announcements (ETCA))*, <http://hq2af.keesler.af.mil/etca.htm>

AFP 64-15, *Survival and Emergency Uses of the Parachute* (projected to be AFPAM 36-2242)

AFI 90-501, *Criteria for Air Force Assessments*

AFI 90-901, *Operational Risk Management Program*

AFPAM 90-902, *Managing Risk and Operational Decision Making* (forthcoming)

AFOSH STD 48-1, *Respiratory Protection Program*

CFETP 1T0X1, Parts 1-2 AFSC 1T0X1, *Survival Evasion, Resistance, Escape (SERE) Training Instructor Career Field Education and Training Plan*

DoD 4515.13-R, *Air Transportation Eligibility*

DPSC Manual 4155.2, Appendix A, *Medical Inspection Procedures for Operational Rations*

AFMCI 21-107, *Tool Control and Accountability Program*

AFMCI 21-119, *Test/Evaluation Aircraft Maintenance Management Policy*

AFMCI 90-203, *Flight Operations Inspections*

**TO/TCTO-SERIES TECHNICAL ORDER TITLE**

0-1-CD-1, *Numerical Index* (CD-ROM version)

00-CD-1, *Technical Manual Set, Methods and Procedures TOs*, (CD-ROM version, contains most 00-Series TOs)

11P10-6-7, *Storage and Maintenance Procedures--PCU-63(V)/P--Universal Water Activated Release System (UWARS)*, P/N 1814-017-01 and 1814-017-02

11P12-15-7, *Cutter Reefing Line*, P/N C1-1.15 and C1-4.0

14D3-10, *TCTO Series*

14D3-10-1, *Inspection, Repair, and Packing Instructions Ejection Seat Aircrew Recovery Parachute P/N J114509 - Series (ACES II)*

14P3-5, *TCTO Series*

14P3-6, *TCTO Series*

14S-1-131, *Operation and Maintenance Instructions, Survival Vest Assembly* (formerly contained in 14S1-3-51)

14S1-9-1, *Operation and Maintenance Instructions with Illustrated Parts Breakdown, Survival Actuator P/N 025-750000-1, -5 (H Koch)*

14S1-11, *TCTO Series*

14S1-11-3, *Overhaul Instructions with Illustrated Parts Breakdown, ACES II Survival Kits*

15X5-4-4-12, *Intermediate Maintenance Instructions Pressure-Demand Breathing Oxygen Mask USAF Type MBU-5/P*

15X5-4-4-13, *Overhaul Instructions with Illustrated Parts Breakdown Pressure-Demand Breathing Oxygen Mask USAF Type MBU-5/P*

33D2-10-10-1, *Instructions With Illustrated Parts Breakdown, MQ-1 Test Set (Sun Electric)*

33D2-10-32-1, *Instructions With Illustrated Parts Breakdown, MQ-1A Test Set (P/N 6504/Tec Air Serv)*

33D2-10-68-1, *Pressure Breathing Oxygen Flight Ensemble Test Set, TTU-529/E*

### **Abbreviations and Acronyms**

**AAC**—Air Armament Center

**AFFTC**—Air Force Flight Test Center

**AFRL**—Air Force Research Laboratory

**GFR**—Government Flight Representative

**HSW**—Human Systems Wing

**MEGP**—Mission Essential Ground Personnel

**MESP**—Maintenance/Engineering Support Personnel

**TPP**—Test Parachute Program

**Attachment 2 (ADDED)****GLOSSARY OF MAJCOM T.O. OPTIONS, REFERENCES AND SUPPORTING INFORMATION**

**List Of Options:** Technical Order options listed below are applicable to AFMC. Options marked “Mandatory” will be implemented if your unit maintains the affected equipment. Options marked “Unit” may be implemented at the discretion of the DFO.

<b>MAJCOM T.O.</b>	<b>T.O. Options Reference</b>	<b>Subject</b>	<b>Option</b>
13A1-1-1	PARA 3-5	180 Day inspection of PCU-17/P Restraint Harness and HBU-6/P Safety Straps	Mandatory
	PARA 2-19	Optional restraint line stowage pocket	Mandatory
14-1-4	2-6, Note 2	Use of local control numbers	Mandatory
14D1-2-1	3-4h	Routing of chest straps through V-ring	Mandatory
14D3-11-1	5-10h, Note	Installing webbing and snaps for stowing zero delay lanyard	Mandatory
	5-16c	Installation of SDU-5/E light on torso harness	Mandatory
	5-16f, Note	Installation of SRU-16/P minimum survival kit	Mandatory
	5-16f(1) or (2)	SRU-16/P in minimum survival kit pocket	Unit
	5-16g(12), Note	Direct beacon plug-to-riser hookup	Mandatory
	11-8m, Note	Installation of AN/URT-33c/m beacon	Mandatory
	11-8o, Note	Installation of hook blade knife	Mandatory
	13-9g, Note	Installation of personnel lowering device	Unit
	18-1e, Note	Installation of minimum survival kit	Mandatory
	18-1f, Note	Installation of SDU-5/E strobe light	Mandatory
	18-1k	Installation of Backpad	Unit
	18-n, Note	Installation of AN/URT Series Beacon	Mandatory
14P3-1-112	2-4, Note	Location of MC-1 knife on outer garment	Mandatory
	2-16	Rework of flight jacket for wear with combat edge equipment	Unit
14P3-4-151	1-2.7.1	High contrast visors wear	Unit
	3-2.6, Note	Manufacture/Installation of Night Vision System Mounts	Unit
	5-4.3	Life Support performs postflight inspection responsibilities	Mandatory



14P3-5-81	2-8	Wear of Anti-Exposure suit accessories Mandatory	
14P3-5-91	1-14, Note	Determination of essential clothing and equipment requirements Mandatory	
14P3-6-121	6-1, Note	Garment cleaning will be accomplished by Life Support technicians	Mandatory
	4-3.2. Note	Check the garment fit on each aircrew and re-accomplish as necessary during the periodic inspection	Mandatory
14S-1-102	5-1. Note	Information pertaining to organization, unit and activity on all flotation equipment will be deleted	Mandatory
	5-1.1.3. Note	Initial functional test will be accomplished	Mandatory
	Table 7-3, Note 4	Spare battery	Mandatory
	Table 7-3, Note 7	Use of SDU-5/E	Mandatory
	Table 7-3, Note 8	Use of desalter kit	Mandatory
	Table 7-4, Note 4	Spare battery	Mandatory
	Table 7-4, Note 10	Use of SDU-5/E	Mandatory
14S1-3-51	1-1.3. Note	ALSMS	Mandatory
	2-7.2.	ALSMS	Mandatory
	7-1, 7-3	Options approved by MAJCOM	Mandatory
15X5-3-6-1	4-7.1, Note	Taping mask for temporary use	Unit
	4-13	Postflight inspection (MBU-12/P)	Mandatory
	5-6	Frequency of 12/P mask disassembly Every 30 days	Mandatory
	5-19.5a	Strap fastener in lieu of hose clamp	Mandatory
	5-19.5b	Use of strap fastener installation tool	Mandatory
	5-19.9a	Torquing of MBU-12/P valve	Mandatory
15X5-4-1-101	3	Recording of CRU inspection in ALSMS	Mandatory
	3b, Note	Use of MQ-1 and MH-2	Mandatory
15X5-4-4-12	4-4d(5), Note 3	Alternate method for securing 5/P mask straps	Unit
	5-2	Frequency of 5/P mask disassembly every 30 days	Mandatory
	5-5e	Use of strap fastener on MBU-5/P masks	Mandatory
	5-11a, Note	Postflight inspection by Life Support	Mandatory
15X5-4-4-13	3-2e	Use of strap fastener	Mandatory
15X5-4-5-3	7a(3)	Use of strap fastener	Mandatory
15X5-4-8-1	6-2	Life support personnel inspect and repair MBU-10/P masks	Mandatory

	6-2	Complete disassembly of masks will not Exceed 120 days	Mandatory
	6-4i	Use of strap fastener	Mandatory
15X5-4-10-1	4-2a(8)	Quick don mask vent valve will be in closed position when smoke goggles are not in use	Mandatory
	5-2d	Complete disassembly of masks will not exceed 120 days	Mandatory
	5-5.3.3.	Use of strap fastener	Mandatory
15X5-5-3-1	5-5b(6), Note	Record periodic inspection in ALSMS, DD Form 1574 and pressure sensitive Tape	Mandatory
	5-8o	Use of strap fastener on smoke/quick –don masks	Mandatory

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